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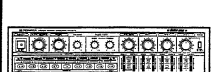
Service Manual



ORDER NO.
ARP1902

STEREO MIXING AMPLIFIER

SA-V210

• This manual is applicable to the SA-V210/SE type.

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1. SPECIFICATIONS

AMPLIFIER SECTION

DIN continuous power output
1 kHz, 1 %, 4 Ω ..... 120 W + 120 W
Dynamic power (2 Ω) ..... 170 W
Total Harmonic Distortion
(AUX IN, 1 kHz, 60 W, 8 Ω) ..... 0.1 %*
Input Terminal (Sensitivity/Impedance)
Audio
MIC ..... 2.5 mV/25 kΩ
VCR, TAPE/AUX ..... 75 mV/50 kΩ
LASERDISC, CABLE ..... 150 mV/50 kΩ
Video
LASERDISC, VCR/CAMERA ..... 1 Vp-p/75 Ω
Output Terminal (Output level/Output impedance)
Audio
MONITOR L+R, L, R ..... 150 mV/5 kΩ
TAPE REC L, R ..... 150 mV/2.2 kΩ
Video
MONITOR, VCR/CAMERA ..... 1 Vp-p/75 Ω
Speakers Terminal
A or B ..... 4 to 16 Ω
A and B ..... 8 to 32 Ω
Frequency Response
MIC ..... 100 Hz to 20 kHz ±3 dB
LASEDISC, CABLE, VCR, TAPE/AUX
..... 10 Hz to 60 kHz ±3 dB

Tone Control (Music/Mic)
BASS ..... ±12 dB/±12 dB (100 Hz)
TREBLE ..... ±10 dB/±10 dB (10 kHz)
Echo delay time/decay time ..... 150 to 300 msec/0~4 sec
Key Control Range ..... ± 2 musical intervals (9 positions)
Signal to Noise Ratio (DIN, continuous power/50 mW)
MIC ..... 50 dB/50 dB
LASERDISC, CABLE, VCR, TAPE, TAPE/AUX ..... 78 dB/60 dB
Power Supply, Others
Power requirements ..... AC 110/120 – 127/220 /240 V (Switchcable), 50/60 Hz
Power consumptions ..... 525 W
Dimensions ..... 420 (W) x 130 (H) x 410 (D) mm
Weight (without package) ..... 13.0 kg

Accessories
Audio cords 1
Operating instructions 1

• *Specifications and design subject to possible modification without notice due to improvement.*

* *Measured by Audio Spectrum Analyzer.*

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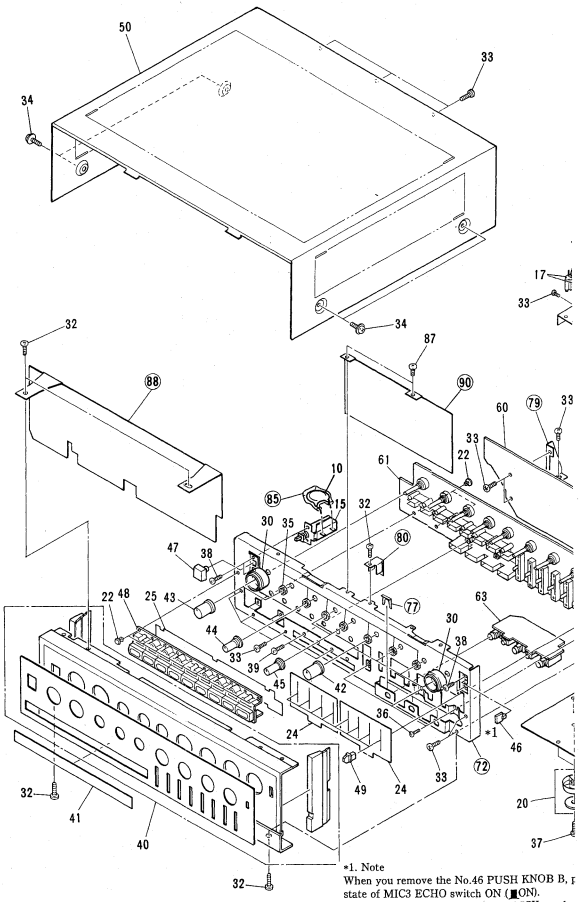
2. EXPLODED VIEWS AND PARTS LIST

NOTES:

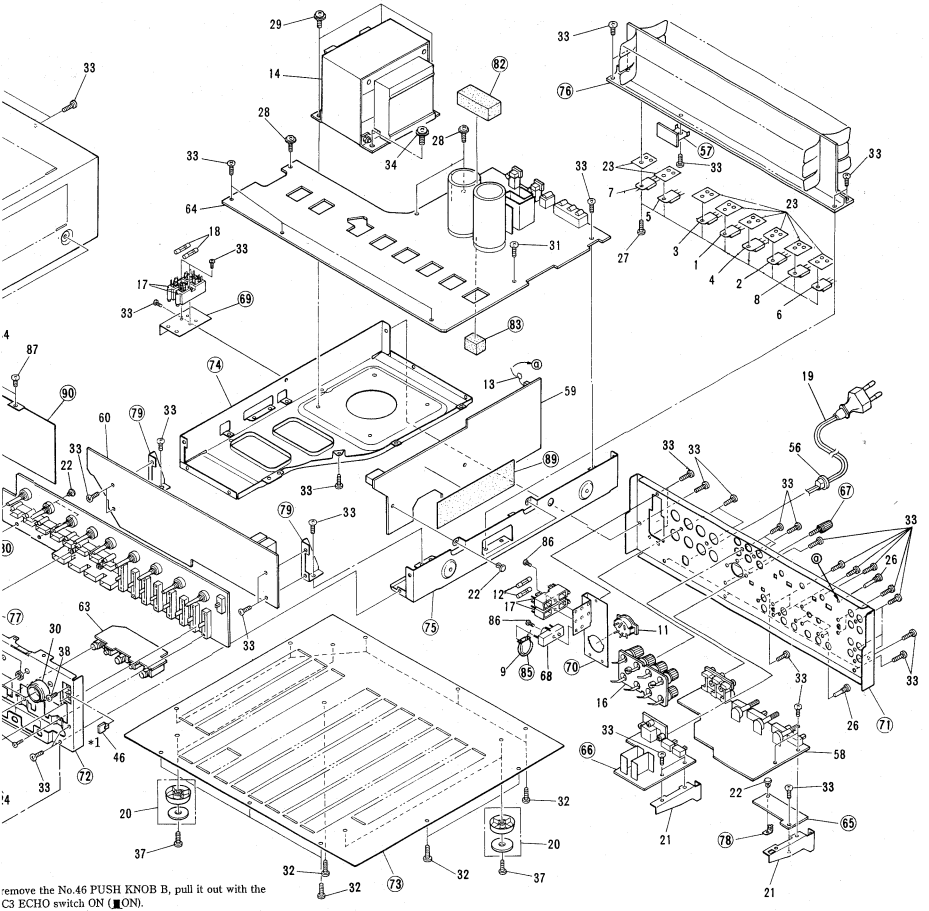
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

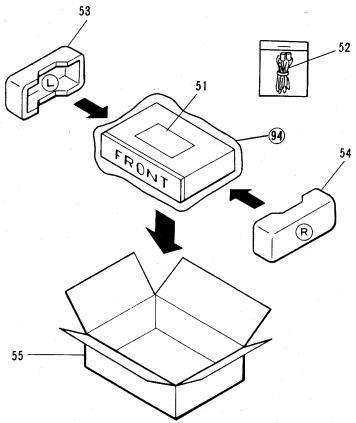
Mark	No.	Part No.	Description
⚠	1	2SA1516P	TRANSISTOR Q 3
⚠	2	2SA1516P	TRANSISTOR Q 4
⚠	3	2SA1516P	TRANSISTOR Q 7
⚠	4	2SA1516P	TRANSISTOR Q 8
⚠	5	2SC3907P	TRANSISTOR Q 1
⚠	6	2SC3907P	TRANSISTOR Q 2
⚠	7	2SC3907P	TRANSISTOR Q 5
⚠	8	2SC3907P	TRANSISTOR Q 6
⚠	9	ACG1003	CKA (0.01/AC400V) C 1
⚠	10	ACG1003	CKA (0.01/AC400V) C 2
⚠	11	AKX-507	VOLTAGE SELECTOR S 2
⚠	12	AEK-514	FUSE(T4A) FU2,FU3
⚠	13	CKDYB102K50	CERAMIC CAPACITOR C 6
⚠	14	ATS1251	POWER TRANSFORMER T 1
⚠	15	ASG-542	POWER SWITCH S 1
	16	AKE-055	SPEAKER TERMINAL 8-P
⚠	17	AKR-038	FUSE HOLDER
⚠	18	AEK-506	FUSE(T630MA) FU4,FU5
⚠	19	ADG1049	AC POWER CORD
	20	AEC-613	CABINET BUMPER
	21	BNG1026	PCB SUPPORTER
	22	AEC-441	RIVET
⚠	23	AEC-818	MICA SHEET
	24	AED1092	COVER
	25	AED1093	BLIND SHEET
	26	ABA-176	SCREW
	27	ABA-258	SCREW
	28	ABA-283	SCREW (STEEL)
	29	ABA1015	SCREW
	30	ABN1010	SCREW
	31	BBT30P080FMC	SCREW
	32	BBZ30P060FZK	SCREW
	33	BBZ30P080FZK	SCREW
	34	FBT40P080FZK	SCREW
	35	NK70FUC	NUTS
	36	PMZ20P030FMC	SCREW
	37	VBZ40P080FMC	SCREW
	38	VMZ30P060FMC	SCREW
	39	VPZ30P060FZK	SCREW
	40	ANB1316	FRONT PANEL ASS'Y
	41	AAK1716	PVC PANEL B
	42	AAB1006	KNOB B
	43	AAB1007	KNOB C
	44	AAB1073	KNOB A
	45	AAB1074	KNOB A
	46	AAD-480	PUSH KNOB B *1
	47	AAD1277	POWER KNOB
	48	AAD1389	KEY-CON KNOB ASS'Y
	49	AAE1030	KNOB
	50	ANE-493	BONNET CASE

Mark	No.	Part No.	Description
	51	ARC1172	OPERATING INSTRUCTIONS
	52	ADE-044	PULG CORD
	53	AHA-402	STYROL PROTECTOR (L)
	54	AHA-403	STYROL PROTECTOR (R)
	55	AHD1644	PACKING CASE
	56	AEC-882	STRAIN RELIEF
	57		TRANSISTOR ASSY
	58	AWZ2481	REAR ASSY
	59	AWZ2482	SWITCH ASSY
	60	AWZ2485	KEY CONTROL ASSY
	61	AWZ2487	FRONT ASSY
	62		.....
	63	AWZ2479	MIC ASSY
	64	AWZ2486	MAIN ASSY
	65		REMOTE ASSY
	66		DIN ASS'Y
	67		TERMINAL SCREW
⚠	68	AKC-071	2P TERMINAL
	69		PLATE
	70		SELECTOR HOLDER
	71		REAR PANEL
	72		PANEL STAY
	73		BOTTOM PLATE
	74		TRANS FRAME
	75		RIGHT FRAME
	76		HEAT SINK
	77		MOUNTING PLATE
	78		PLATE
	79		PCB HOLDER A
	80		PCB HOLDER B
	81		.....
	82		CUSHION
	83		CUSHION
	84		.....
	85		COVER
	86	BBZ30P100FZK	SCREW
	87	VCZ30P060FMC	SCREW
	88		PLATE
	89		PCB COVER
	90		SHIELD PLATE ASSY
	91		.....
	92		.....
	93		.....
	94		SHEET



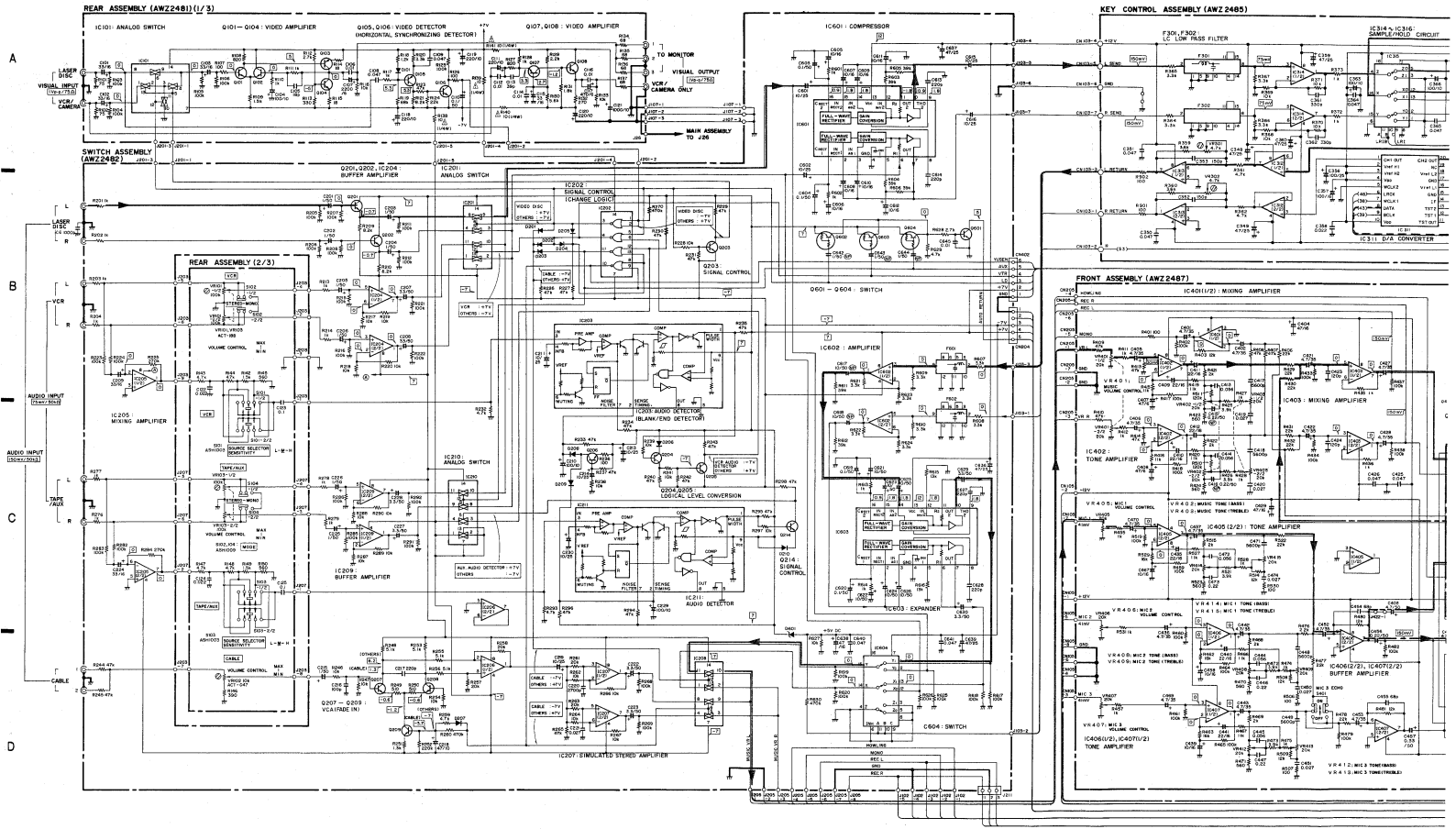
*1. Note
When you remove the No.46 PUSH KNOB B, p
state of MIC3 ECHO switch ON (■ON).
The switch on the No.61 FRONT ASSY can be
the knob is removed with the ECHO switc

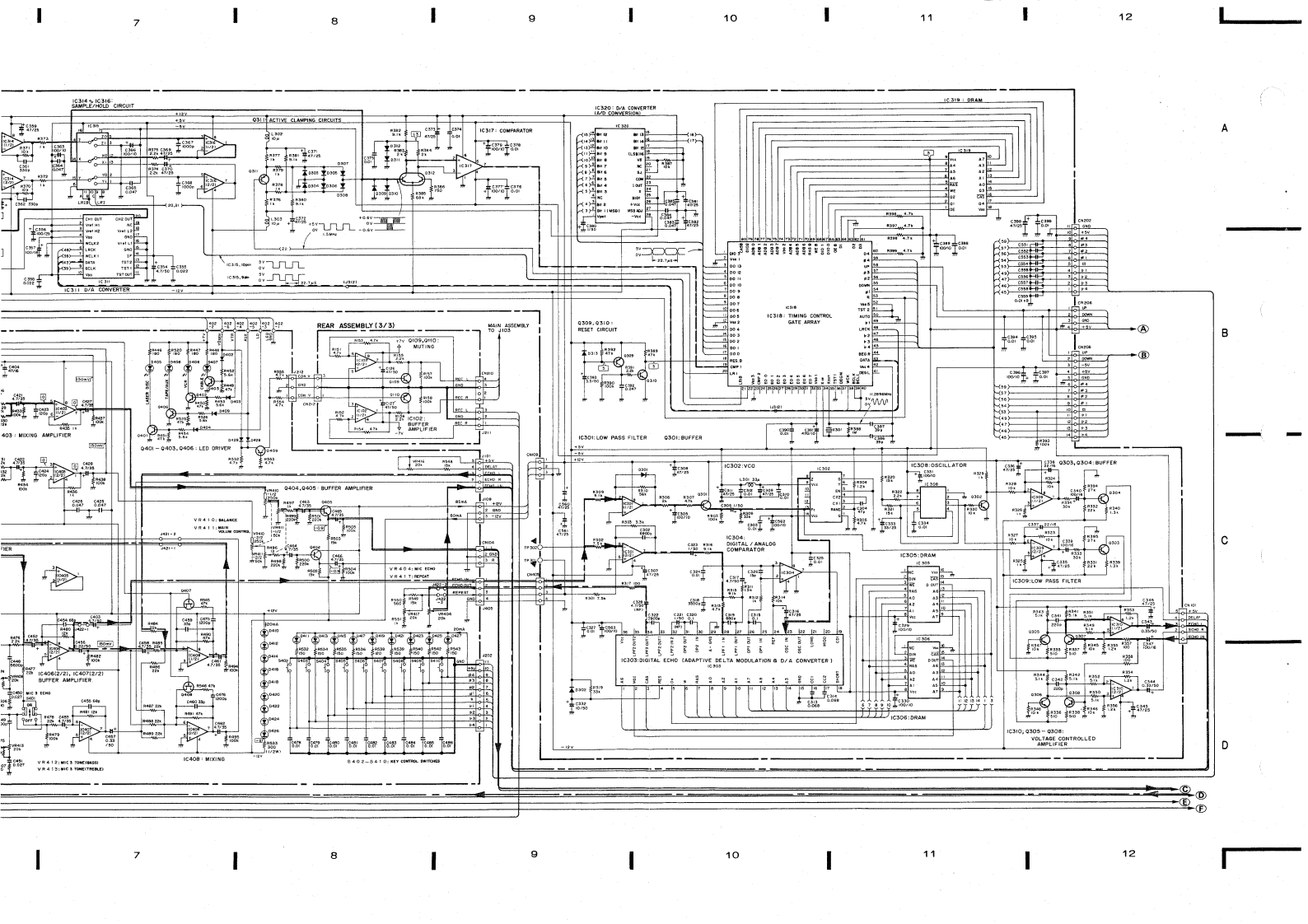


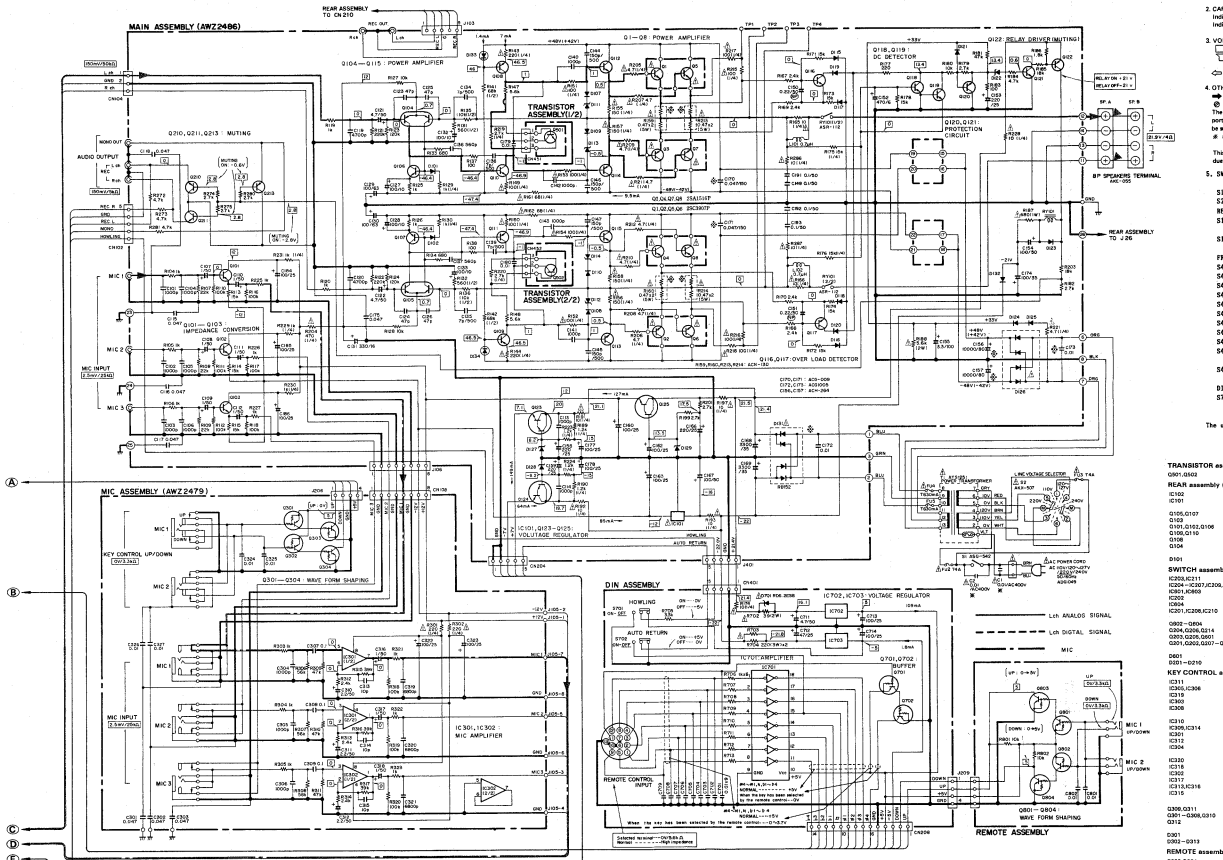


remove the No.46 PUSH KNOB B, pull it out with the C3 ECHO switch ON (■ON).
on the No.61 FRONT ASSY can be easily damaged if is removed with the ECHO switch OFF (▬OFF).

3. SCHEMATIC DIAGRAM




IC314 ~ IC316: SAMPLE/HOLD CIRCUIT
Q311: ACTIVE CLAMPING CIRCUITS
IC317: COMPARATOR
IC320: D/A CONVERTER (A/D CONVERSION)
IC319: DRAM
IC311: D/A CONVERTER
IC318: TIMING CONTROL GATE ARRAY
REAR ASSEMBLY (3/3)
MAIN ASSEMBLY TO J103
Q309, Q310: RESET CIRCUIT
Q107, Q109, Q110: MUTING
IC102: BUFFER AMPLIFIER
Q401 ~ Q403, Q406: LED DRIVER
Q403: MIXING AMPLIFIER
Q404, Q405: BUFFER AMPLIFIER
IC406 (2/2), IC407 (2/2): BUFFER AMPLIFIER
IC408: MIXING
VR410: BALANCE
VR411: MAIN VOLUME CONTROL
VR412: MIC 3 TONE (BASS)
VR413: MIC 3 TONE (TREBLE)
VR414: DELAY
VR415: ECHO H
VR416: ECHO L
VR404: MIC ECHO
VR417: REPEAT
S402 ~ S410: KEY CONTROL SWITCHES
IC301: LOW PASS FILTER
Q301: BUFFER
IC302: VCO
IC304: DIGITAL / ANALOG COMPARATOR
IC308: OSCILLATOR
Q303, Q304: BUFFER
IC309: LOW PASS FILTER
IC305: DRAM
IC306: DRAM
IC303: DIGITAL ECHO (ADAPTIVE DELTA MODULATION & D/A CONVERTER)
IC310, Q305 ~ Q308: VOLTAGE CONTROLLED AMPLIFIER



1. RESISTORS:
Indicated in Ω, ¼W ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
Signal voltage in (120W + 120W,) 4Ω(output (1kHz)
DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
mA : DC current at no input signal

4. OTHERS:
Signal route
Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES

S1: POWER ON—OFF
S2: Voltage selector (AC110V,120V-127V,220V,240V)
REAR assembly
S101,S103: Slide SW(VCR SOUCE SELECTOR SENSITIVITY)
L—R—R
S102,S104:Slide SW(MODE) L—R—R

FRONT assembly
S401: Push SW(ECHO) ON—OFF
S402: Tact SW(KEY CONTROL) b 4
S403: b 3
S404: b 2
S405: b 1
S406: P
S407: # 1
S408: # 2
S409: # 3
S410: # 4

S416: Slide code SW(DELAY)

DIN assembly
S701,S702:Slide SW(AUTO RETURN,HOWLING CUT)
ON—OFF

The underline indicates the switch position.

TRANSISTOR assembly

Q901,Q902	2SC2603

REAR assembly (AWZ2481)

IC102	M5218FP
IC101	UPC4066C
Q105,Q107	2SA933S
Q106	2SB709
Q109,Q102,Q106	2SA1015
Q108,Q110	2SC2619
Q105	2SC2240
Q104	2SD438
D101	1SS252

SWITCH assembly (AWZ2482)

IC203,IC211	BA336
IC204—IC207,IC209,IC602	M5218FP
IC201,IC603	NE571
IC202	UPD4018C
IC604	UPD4053BC
IC201,IC208,IC210	UPD4066C
Q602—Q604	RN2201
Q204,Q205,Q214	2SA933S
Q203,Q205,Q601	2SC1740S
Q201,Q202,Q207—Q209	2SC1845
D601	HZS3BLL
D201—D210	1SS252

KEY CONTROL assembly (AWZ2485)

IC311	LC7881—C
IC312,IC306	M51941A—15
IC310	M5218FP
IC303	M5814A—12
IC308	M51516P
IC310	M5218P
IC305,IC314	M5218FP
IC301	M62320P
IC312	NJM072D—E
IC304	NJM2110
IC320	PCM54HP
IC316	PD0028
IC302	SN74LS024N
IC317	TL510CP
IC313,IC315	UPC4052C
IC315	UPD4538C
Q309,Q311	2SA933S
Q301—Q308,Q310	2SC1740S
Q312	2SC2219
D301	RD5.1ES2
Q302—Q313	1SS252

REMOTE assembly

Q803,Q804	RN1201
Q801,Q802	RN2201

FRONT assembly (AWZ2487)

IC402	M5218P
IC401,IC403	M62189P
IC405—IC408	M5220P
Q408	2SA1115
Q401—Q403,Q406	2SC1740S
Q404,Q405	2SC1845
Q407,Q408	2SK246
Q405—Q408,D411,D413,D415, Q417,Q421,Q423,Q425,D427	2SJ108
D418	AZL1009
D419	AZL1010
D410,D412,D414,D416,D420, D422,D424,D426	AZL1060
D402—D404,D406,D428,D429	1SS252

MIC assembly (AWZ2478)

IC301,302	NJM0720—E
Q302,Q304	RN1301
Q301,Q302	RN2201

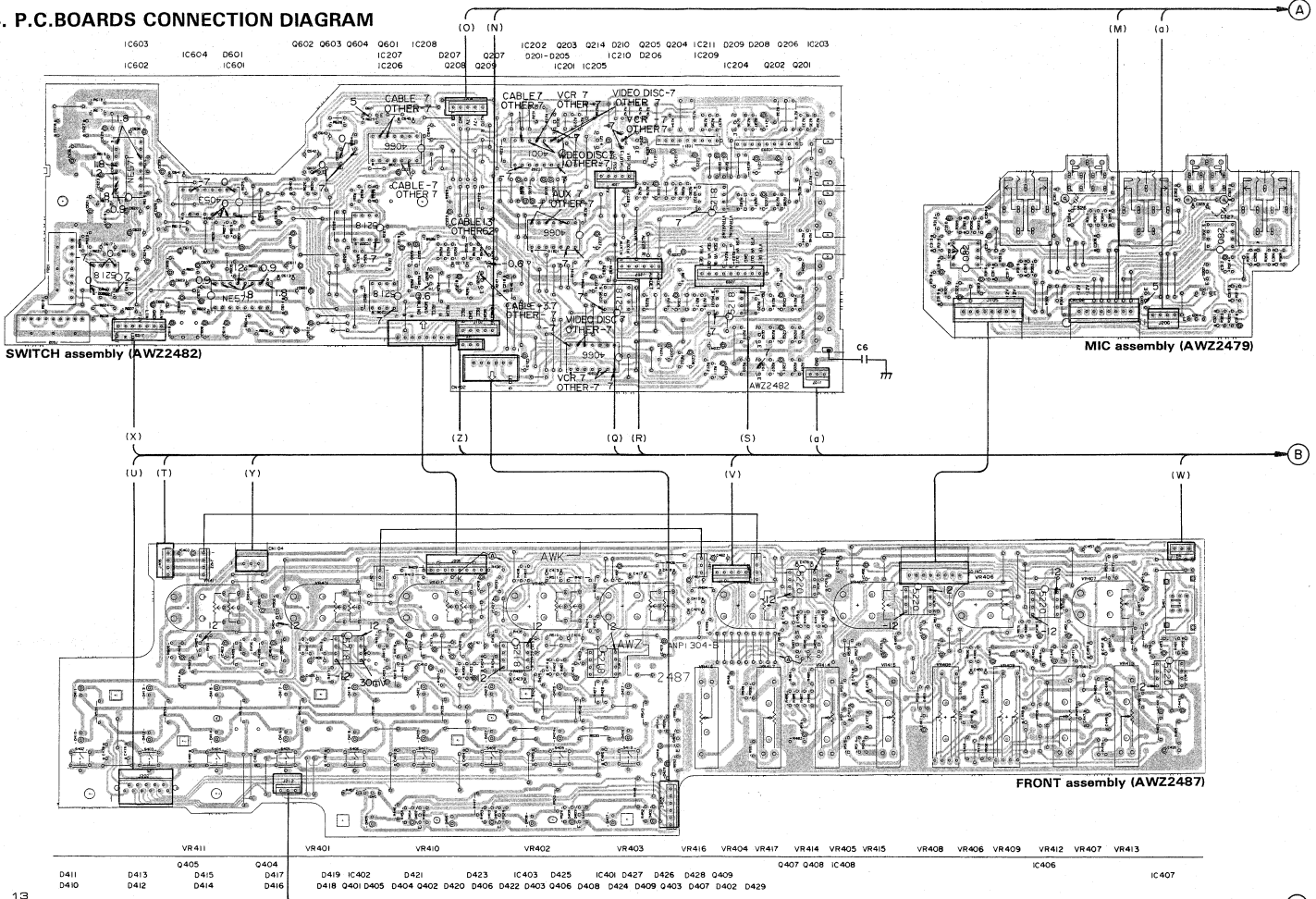
MAIN assembly (AWZ2486)

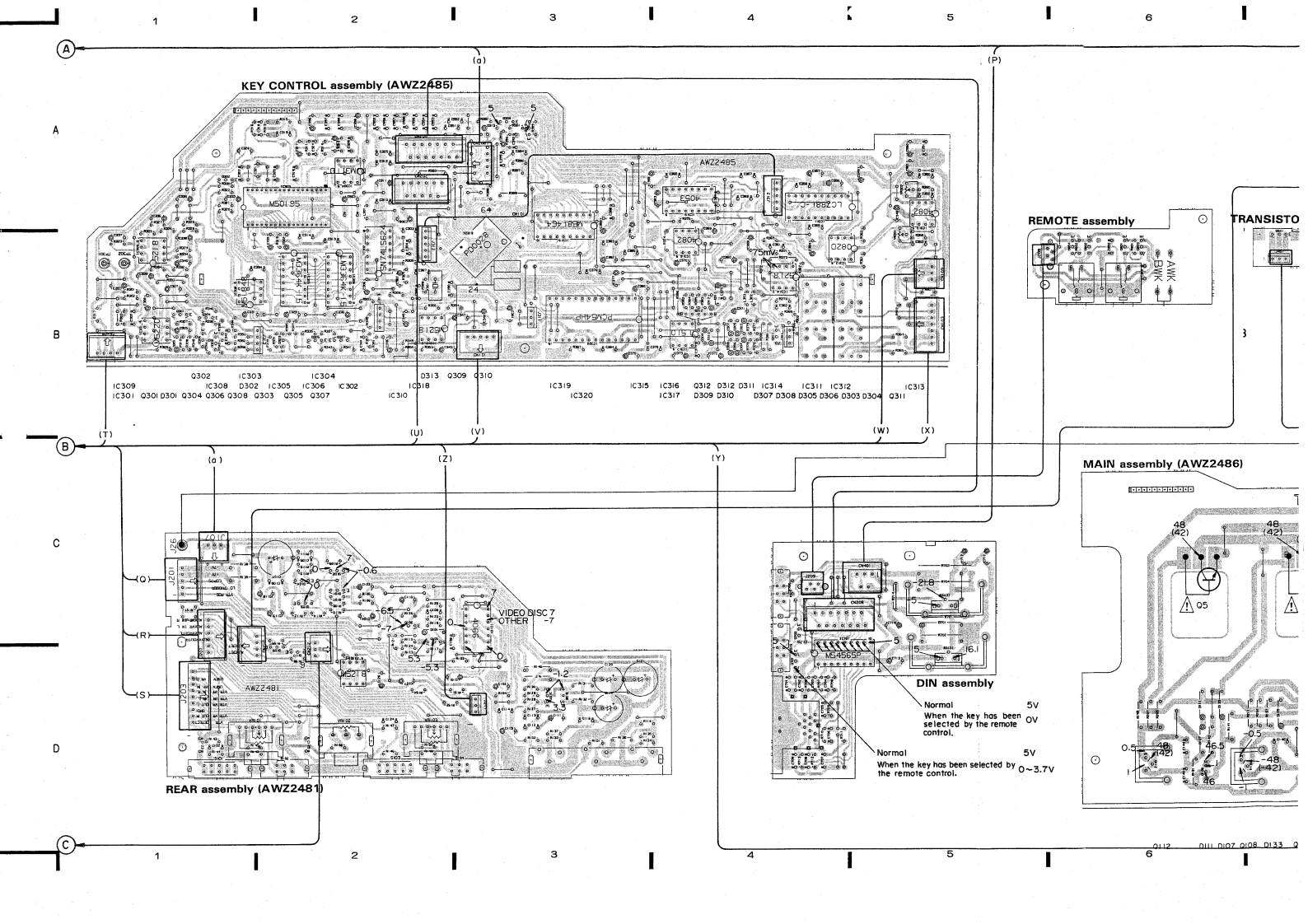
IC101	MPC1941CH
Q108,Q109	2SA1145
Q114,Q115	2SA1308
Q101—Q111,Q213	2SA933S
Q104,Q106	2SA979
Q103	2SA992
Q122	2SB560
Q124	2SB790A
Q116,Q119,Q121	2SC1740S
Q107—Q110,Q106,Q107,Q118, Q117	2SC1845
Q110,Q111	2SC2705
Q112,Q113	2SC3298
Q123,Q125	2SD838A
Q133,Q134	AEL—437
D132	RB162
D130	RB602
D122	RD12RB
D128	RD130S83
D111—D114	RD5.6ES
D127,D126	RD6.2ES83
D124,D125	S1588
D101,D102,D107—D110, D115—D121,D123,D132	1SS252

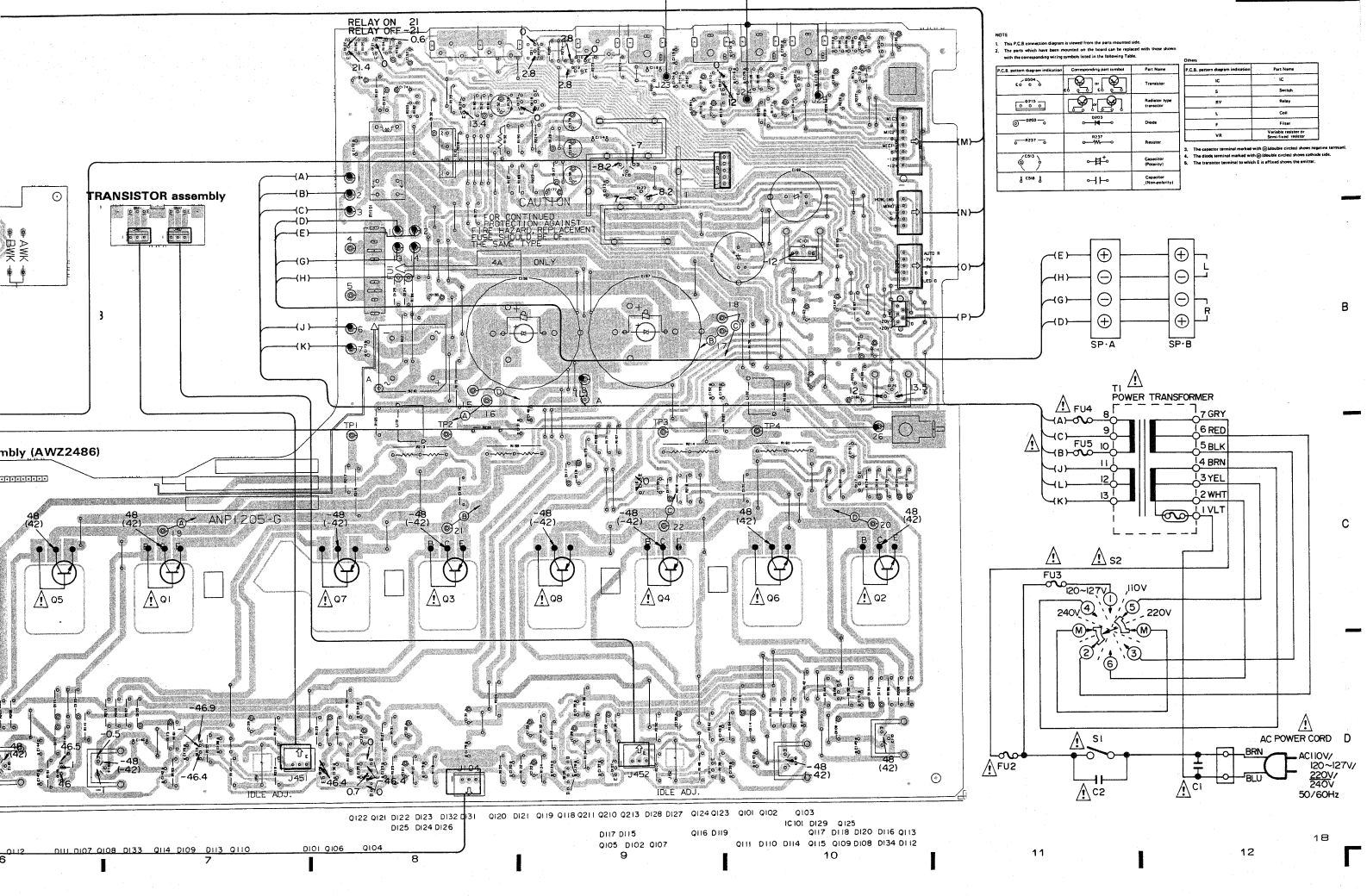
DIN assembly

IC703	M5F78405L
IC701	MB3456P
IC702	NJM78G5A
Q702	RN1201
Q701	RN2201
D701	RD6.2ES

4. P.C.BOARDS CONNECTION DIAGRAM




KEY CONTROL assembly (AWZ2485)
REMOTE assembly
MAIN assembly (AWZ2486)
REAR assembly (AWZ2481)
DIN assembly
Normal
When the key has been selected by the remote control.
5V
0V
Normal
When the key has been selected by the remote control.
5V
0~3.7V
VIDEO DISC 7
OTHER 7
(T)
(U)
(V)
(W)
(X)
(Y)
(Z)
(P)
(Q)
(R)
(S)



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shows with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
2SD4		Transistor
2SD15		Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C913		Capacitor (Polarity)
C948		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⓝ (double circles) shows negative terminal.
4. The diode terminal marked with ⓒ (double circles) shows cathode side.
5. The transistor terminal is which E is effixed shows the emitter.

NOTE:
This picture shows the foil side of the printed circuit.

KEY CONTROL assembly (AWZ2485)
REMOTE assembly
MAIN assembly (AWZ2486)
DIN assembly
REAR assembly (AWZ2481)
Normal
5V
When the key has been selected by the remote control.
0V
Normal
5V
When the key has been selected by the remote control.
0~3.7V

MIC assembly (AWZ2479)

SWITCH assembly (AWZ2482)

FRONT assembly (AWZ2487)

5. ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "✱" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

Miscellaneous Parts

P.C.BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	TRANSISTOR assembly	
	REAR assembly	AWZ2481
	SWITCH assembly	AWZ2482
	KEY CONTROL assembly	AWZ2485
	FRONT assembly	AWZ2487
	MIC assembly	AWZ2479
	MAIN assembly	AWZ2486
	REMOTE assembly	
	DIN assembly	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Q3,Q4,Q7,Q8 Transistor	2SA1516P
⚠	Q1,Q2,Q5,Q6 Transistor	2SC3907P
⚠	C1,C2 Power capacitor (0.01μF/AC400V)	ACG1003
⚠	C6 Ceramic capacitor	CKDYB102K50
⚠	T1 Power transformer	ATS1251
⚠	S1 Power switch	ASG−542
⚠	S2 Line voltage selector switch (AC110V/120V−127V/220V/240V)	AKX−507
⚠	FU4,FU5 Fuse (T630mA/250V)	AEK−506
⚠	FU2,FU3 Fuse (T4A/250V)	AEK−514
⚠	AC Power cord	ADG1049
	8P Speaker Terminal	AKE−055
⚠	Fuse holder	AKR−038

TRANSISTOR assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q501,Q502	2SC2603

REAR assembly (AWZ2481)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC102	M5218PF
	IC101	UPD4066BC
	Q105,Q107	2SA933S
	Q103	2SB560
	Q101,Q102,Q106	2SC1740S
	Q109,Q110	2SC2878
	Q108	2SC3245
	Q104	2SD438
	D101	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S101,S103 Slide switch (VCR SOURCE SELECTOR SENSITIVITY)	ASH1003
	S102,S104 Slide switch (MODE)	ASH1009

CAPACITORS

Mark	Symbol & Description	Part No.
	C105	CCCSL180J50
	C113	CCCSL390J50
	C110	CEAS0R1M50
	C104	CEAS101M10
	C121	CEAS102M10
	C111,C118−C120	CEAS221M10
	C107	CEAS222M6
	C101−C103,C115	CEAS330M16
	C126,C127	CEAS470M50
	C117	CEAS471M6
	C106,C112,C114,C116	CFTXA103J50
	C123,C125	CFTXA104J50
	C122,C124	CFTXA223J50
	C108,C109	CFTXA473J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR102 (10k)	ACT−047
	VR101,VR103 (100k×2)	ACT−188
⚠	R138−R141	RD1/4PMFL100J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 6P (VIDEO)	AKB−118
	CN107,CN212 Jumper connector 3P	KPC3
	CN210 Jumper connector 4P	KPC4
	CN201 Jumper connector 5P	KPC5
	CN207 Jumper connector 6P	KPC6
	CN203 Jumper connector 9P	KPC9

SWITCH assembly (AWZ2482)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC203,IC211	BA336
	IC204−IC207,IC209,IC602	M5218PF
	IC601,IC603	NE571
	IC202	UPD4001BC
	IC604	UPD4053BC
	IC201,IC208,IC210	UPD4066BC
	Q602−Q604	RN2201
	Q204,Q206,Q214	2SA933S
	Q203,Q205,Q601	2SC1740S
	Q201,Q202,Q207−Q209	2SC1845
	D601 Zener diode	HZS2BLL
	D201−D210	1SS252

COILS

Mark	Symbol & Description	Part No.
	F601,F602 Low pass filter	ATF1045

CAPACITORS

Mark	Symbol & Description	Part No.
	C216	CCCSL101J50
	C217	CCCSL221J50
	C613,C614,C627,C628	CCDSL221J50
	C642−C644	CEANP010M50
	C617,C618	CEANP100M50
	C619,C620	CEAS0R1M50
	C201−C206,C215,C225,C226	CEAS010M50
	C211,C213,C214,C219,C230	CEAS100M25
	C621−C626	CEAS100M50
	C210,C229	CEAS101M10
	C207,C208,C222,C223,C227,C228,C629,C630	CEAS3R3M50
	C209,C224	CEAS330M16
	C218	CEAS470M10
	C636,C637,C639	CEAS470M25
	C603,C604	CEJA0R1M50
	C605−C612	CEJA100M16
	C601,C602,C615,C616	CEJA100M25
	C638	CEJA470M16
	C221	CFTXA273J50
	C640,C641	CFTXA473J50
	C645	CKDYB103K50
	C220	CQMA272J50

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 2P (CABLE)	AKB−077
	Terminal 2P (AUX)	AKB−093
	Terminal 4P (VIDEO,LD)	AKB−094
	CN402 Jumper connector 6P	KPC6
	CN205 Jumper connector 8P	KPC8

KEY CONTROL assembly (AWZ2485)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC311	LC7881−C
	IC305,IC306	LM3364K−15
	IC319	MB81464−12
	IC303	M50195P
	IC308	M51848P
	IC310	M5218P
	IC309,IC314	M5218PF
	IC301	M5220P
	IC312	NJM072D−E
	IC304	NJM311D
	IC320	PCM54HP
	IC318	PD0028
	IC302	SN74LS624N
	IC317	TL510CP
	IC313,IC316	UPC4082C
	IC315	UPD4053BC

Mark	Symbol & Description	Part No.
	Q309,Q311	2SA933S
	Q301－Q308,Q310	2SC1740S
	Q312	2SC2259
	D301 Zener diode	RD9.1ESB2
	D302－D313	1SS252

COILS

Mark	Symbol & Description	Part No.
	F301,F302 Low pass filtor	ATF1044
	L302,L303 Axial inductor (10μH)	LAU100K
	L301 Axial inductor (33μH)	LAU330K

CAPACITORS

Mark	Symbol & Description	Part No.
	C326	CCDCH150J50
	C304	CCDCH470J50
	C352,C353	CCDSL151J50
	C341,C342	CCDSL221J50
	C386,C387	CCDSL390J50
	C321	CEANP010M50
	C328	CEANP4R7M50
	C306,C323,C380	CEAS010M50
	C332	CEAS100M50
	C305,C329－C331,C363,C366, C377,C379,C389,C396,C562, C563	CEAS101M10
	C339,C340,C347,C357	CEAS101M16
	C356	CEAS101M25
	C337,C338	CEAS220M16
	C393	CEAS3R3M50
	C333	CEAS330M25
	C317,C354	CEAS4R7M50
	C307－C309,C311,C316,C335, C336,C345,C346,C348,C349, C359,C360,C369－C373,C381, C382,C398,C560,C561	CEAS470M25
	C391	CEAS471M10
	C343,C344	CEYAR33M50
	C551,C552	CGMYX103M16
	C367,C368	CKDYB102K50
	C361,C362	CKDYB331K50
	C322	CKDYB392K50
	C319	CKDYB681K50
	C303,C310,C312,C324,C325, C327,C334,C374－C376,C378, C388,C390,C394,C395,C397, C399,C553－C559	CKDYF103Z50
	C355,C358	CKDYF223Z50
	C350,C351,C364,C365, C383－C385,C392	CKDYF473Z50
	C315,C320	CQMA104J50
	C318	CQMA332J50
	C302	CQMA682J50
	C313,C314	CQMA683J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR301,VR302 (4.7k)	VRTS6HS472
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	X301 Ceramic resonator (11.2 MHz)	ASS1031
	CN109 Jumper connector 3P	KPC3
	CN206,CN405 Jumper connector 4P	KPC4
	CN101 Jumper connector 5P	KPC5
	CN103 Jumper connector 7P	KPC7
	CN202 Jumper connector 11P	KPE11
	CN208 Jumper connector 14P	KPE14

FRONT assembly (AWZ2487)

SEMICINDUCTORS

Mark	Symbol & Description	Part No.
	IC403	M5218P
	IC401,IC402	M5218PF
	IC405－IC408	M5220P
	Q409	2SA1115
	Q401－Q403,Q406	2SC1740S
	Q404,Q405	2SC1845
	Q407,Q408	2SK246
	D405－D408,D411,D413,D415, D417,D421,C423,C425,D427 LED	AEL1068
	D418 LED	AEL1069
	D419 LED	AEL1070
	D410,D412,D414,D416,D420, D422,D424,D426 LED	AEL1080
	D402－D404,D409,D428,D429	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S402－S410 Tact switch	ASG－711
	S401 Push switch (MIC3 ECHO)	ASG－820

CAPACITORS

Mark	Symbol & Description	Part No.
	C423,C424	CCCSL121J50
	C459,C460	CCCSL330J50
	C454,C455	CCCSL680J50
	C415,C416	CEANPR22M50
	C456	CEJAR22M50
	C457	CEJAR33M50
	C438,C439,C467	CEJA100M16
	C409－C412,C435,C440,C441	CEJA220M16
	C401,C402,C405,C406,C421, C422,C427,C428,C436,C437, C442,C443,C452,C453,C458, C461－C466,C469,C470	CEJA4R7M35

Mark	Symbol & Description	Part No.
	C403	CEJA4R7M50
	C404,C429	CEJA470M16
	C407,C408	CEJA470M6
	C446,C447,C473	CFTXA224J50
	C419,C420,C450,C451,C474	CFTXA273J50
	C413,C414,C444,C445,C472	CFTXA563J50
	C478−C486	CKDYF103Z50
	C425,C426	CKDYF473Z50
	C475,C476	CQMA122K50
	C417,C418,C448,C449,C471	CQMA562J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR405−VR407 (20k)	ACT1008
	VR401 (20k×2)	ACT1010
	VR411 (50k×2)	ACT1012
	VR404 (20k)	ACT1013
	VR410 (250k×2)	ACT1042
	VR402,VR403 (20k×2)	ACT1043
	VR408,VR409 (20k)	ACU1026
	VR412−VR417 (100k)	ACX−028
	R533	RD1/2PM301J
	Other resistors	RD1/8PM□□□J

MIC assembly (AWZ2479)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301,302	NJM072D−E
	Q303,Q304	RN1201
	Q301,Q302	RN2201

CAPACITORS

Mark	Symbol & Description	Part No.
	C313−C315	CCCSL100D50
	C316−C318	CEJA010M50
	C322,C323	CEXA101M25
	C310−C312	CEYA2R2M50
	C307−C309	CFTXA104J50
	C304−C306	CKCYB102K50
	C301−C303	CKCYF473Z50
	C324−C327	CKDYF103Z50
	C319−C321	CQMA682J50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R301,R302	RD1/4PMFL221J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Headphone jack (MIC1−3)	AKN1010
	Mini jack (KEY CON.)	AKN1016

MAIN assembly (AWZ2486)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
⚠	IC101	UPC79M12H
	Q108,Q109	2SA1145
	Q114,Q115	2SA1306
	Q210,Q211,Q213	2SA933S
	Q104,Q105	2SA979
	Q120	2SA992
	Q122	2SB560
	Q124	2SB750A
	Q118,Q119,Q121	2SC1740S
	Q101−Q103,Q106,Q107,Q116, Q117	2SC1845
	Q110,Q111	2SC2705
	Q112,Q113	2SC3298
	Q123,Q125	2SD836A
	D133,D134 LED	AEL−437
⚠	D131	RB152
⚠	D126	RB602
	D122 Zener diode	RD12EB
	D129 Zener diode	RD13ESB3
	D111−D114 Zener diode	RD5.6EB
	D127,D128 Zener diode	RD8.2ESB3
	D124,D125	S5566
	D101,D102,D107−D110, D115−D121,D123,D132	1SS252

RELAY

Mark	Symbol & Description	Part No.
	RY101	ASR−112

COILS

Mark	Symbol & Description	Part No.
	L101,L102 AF choking coil (0.7μH)	ATH1011

CAPACITORS

Mark	Symbol & Description	Part No.
	C170,C171 (0.047μF/150V)	ACG−009
⚠	C172,C173 (0.01μF/150V)	ACG1005
	C156,C157 (10000μF/80V)	ACH−264
	C123−C126	CCDSL470J50
	C150,C151	CEANPR22M50
	C107−C112	CEAS010M50
	C127,C128,C132,C133	CEAS101M10
	C162,C177,C178	CEAS101M25
	C174	CEAS101M35
	C129,C130	CEAS101M63
	C153	CEAS221M25
	C155	CEAS3R3M100
	C131	CEAS331M16
	C168,C169	CEAS332M35

Mark	Symbol & Description	Part No.
	C121,C122	CEAS4R7M50
	C152	CEAS471M6
	C160,C163,C184−C186	CEXA101M25
	C158,C159,C166	CEXA221M25
	C179,C180	CFTXA103J50
	C101−C106,C113,C114	CKCYB102K50
	C115−C118,C175	CKCYF473Z50
	C134,C135,C138,C139	CMA070D500
	C144−C147	CMA151J500
	C140−C143	CQMA102K50
	C119,C120	CQMA472K50
	C148,C191−C193	CFTXA104J50
	C136,C137	CQMA561K50
	C154	CEAS101M50
	C167	CEXA101M50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R159,R160,R213,R214 (0.47, 5W×2)	ACN−130
	R131,R132,R135,R136,R141, R142	RD1/2PM□□□J
⚠	R149−R158,R165,R166,R286,	RD1/4PMFL□□□J
⚠	R287	
⚠	R221	RD1/4PMF4R7J
	R129,R130,R147,R148,R175, R176,R189,R190,R219,R220, R223,R224,R229−R231	RD1/4PM□□□J
⚠	R143,R144,R161,R162,	RFA1/4PS□□□J
⚠	R191−R193,R197,R204−R212,	
⚠	R215−R218,R228	
⚠	R187	RS1LMF681J
⚠	R188	RS2LMF562J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 2P (REC OUT, PRE OUT, AUDIO OUT STEREO)	AKB−093
	Terminal 1P (MONITOR L+R)	AKB−097
	Terminal 3P (MIC1−3)	AKB−129
	CN104,CN501,CN502 Jumper connector 3P	KPC3
	CN102,CN204 Jumper connector 5P	KPC5
	CN106 Jumper connector 8P	KPC8

REMOTE assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q803,Q804	RN1201
	Q801,Q802	RN2201

CAPACITORS

Mark	Symbol & Description	Part No.
	C801,C802	CKDYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R801,R802	RD1/8PM103J

OTHERS

Mark	Symbol & Description	Part No.
	Mini jack (MIC1,2)	AKN−210

DIN assembly

SIMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC703	M5F79M05L
	IC701	M54565P
	IC702	NJM7805A
	Q702	RN1201
	Q701	RN2201
⚠	D701 Zener diode	RD6.2ESB

SWITCHES

Mark	Symbol & Description	Part No.
	S701,S702 Slide switch (HOWLING, KEY CONTROLLER AUTO RETURN)	ASH1009

CAPACITORS

Mark	Symbol & Description	Part No.
	C713,C714	CEXA101M25
	C712	CEXA470M25
	C701−C709	CKDYF103Z50
	C711	CEXA4R7M50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R702	RS2LMF390J
⚠	R703,R704	RS3LMF221J
⚠	R714	RFA1/4PS100J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	DIN socket 13P (REMOTE CONTROL)	AKP1004
	CN208 Jumper connctor 14P	KPE14
	CN401 Jumper connctor 5P	KPE5

6. ADJUSTMENTS

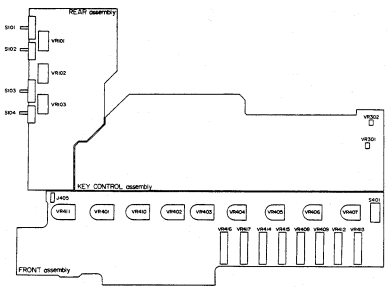
KEY CONTROLLER : GAIN ADJUSTMENT

Set the following to the specified positions before starting adjustment.

VCR automatic switching sensitivity	S101	:Medium
VCR mode switch	S102	:Stereo
VCR input volume	VR101	:MAX
Cable input volume	VR102	:MAX
Music volume	VR401	:MAX
Echo volume	VR404	:MAX
Microphone 1 volume	VR405	:MAX
Microphone 2 volume	VR406	:MAX
Microphone 3 volume	VR407	:MAX
Master volume	VR411	:MAX
Microphone 3 echo	S401	:ON
Balance volume	VR410	:Center

Music low tone	VR402	:Center
Music high tone	VR403	:Center
Microphone low tone	VR414,VR408, VR412	:Center
Microphone high tone	VR415,VR409, VR413	:Center
TAPE/AUX automatic switching sensitivity	S103	:Medium
TAPE/AUX mode switch	S104	:Stereo
TAPE/AUX input volume	VR103	:MAX
Delay volume	VR416	:Around center
Repeat volume	VR417	:Center

Step No.	Input signal and setting	Adjustment location	Measuring location	Adjustment value	Remarks
1	• Input 1kHz, 75mVrms of sine wave into the right and left VCR input terminals. • Key control position b4 (Normal)	——	Right and left speaker terminals	Measure the output level.	
2	• Set the key control position to b4.	VR301 (L) VR302 (R)	Right and left speaker terminals	Adjust so that the adjustment value is + 0.5± 0.5 dB to the value measured in step No. 1.	
3	• Key control positions b1 through b3 #1 through #4	——	Right and left speaker terminals	Check that the adjustment value is; b1 through b3: + 0.5± 3dB to the value measured in step No.1. #1 through #4: – 0.5± 3dB to the value measured in step No.1.	



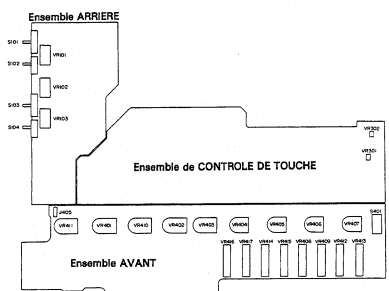
6. RÉGLAGE

CONTROLEUR DE TOUCHE : AJUSTEMENT DU GAIN

Régler les éléments suivants aux positions spécifiées avant de commencer l'ajustement.

Sensibilité de commutation automatique de magnétoscope:	S101	:Médium
Commutateur de mode de magnétoscope:	S102	:Stéréo
Volume d'entrée de magnétoscope	VR101	:MAX
Volume d'entrée de câble	VR102	:MAX
Volume de musique	VR401	:MAX
Volume d'écho	VR404	:MAX
Volume de micro 1	VR405	:MAX
Volume de micro 2	VR406	:MAX
Volume de micro 3	VR407	:MAX
Volume principal	VR411	:MAX
Echo de micro 3	S401	:ON
Volume d'équilibre	VR410	:Centre
Tonalité basse de musique	VR402	:Centre
Tonalité haute de musique	VR403	:Centre
Tonalité basse de micro	VR414,VR408, VR412	:Centre
Tonalité haute de micro	VR415,VR409, VR413	:Centre
Sensibilité de commutation automatique TAPE/AUX	S103	:Médium
Commutateur de mode TAPE/AUX	S104	:Stéréo
Volume d'entrée TAPE/AUX	VR103	:MAX
Volume de retard	VR416	:Autour du centre
Volume de répétition	VR417	:Centre

N° d'étape	Signal d'entrée et réglage	Point de réglage	Point de mesure	Valeur de réglage	Remarques
1	• Entrée 1kHz, 75 Vrms de forme d'onde dans les bornes d'entrée de magnétoscope droite et gauche. • Position de contrôle de touche b (normale)	———	Bornes de haut-parleur droit et gauche	Mesurer le niveau de sortie	
2	• Placer la position de contrôle de touche sur b4.	VR301 (G) VR301 (D)	Bornes de haut-parleur droit et gauche	Ajuster de sorte que la valeur ajustée soit +0,5 ± 0,5 dB à la valeur mesurée à l'étape N°1.	
3	• Position de contrôle de touche b1 à b3 N°1 à N°4	———	Bornes de haut-parleur droit et gauche	Vérifier que la valeur d'ajustement est: b1 à b3 : +0,5 ±3 dB à la valeur mesurée à l'étape N°1. N°1 à N°4 : −0,5 ±3 dB à la valeur mesurée à l'étape N°1.	



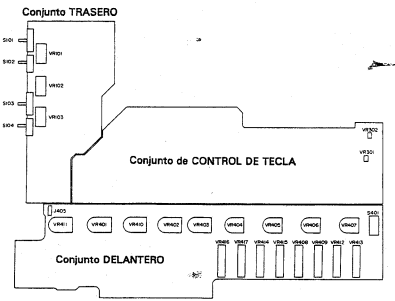
6.AJUSTES

CONTROLADOR DE LLAVE: AJUSTE DE GANANCIA

Fije lo siguiente a las posiciones especificadas antes de iniciar el ajuste.

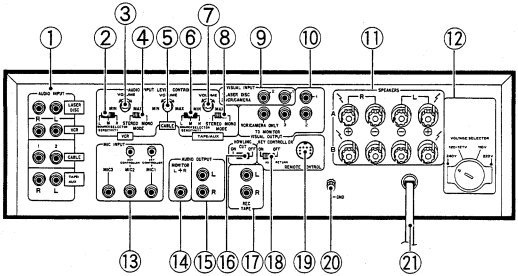
Sensibilidad de conmutación automática de VCR	S101	:Medio
Interruptor de modo de VCR	S102	:Estereofónico
Volumen de entrada de VCR	VR101	:MÁX.
Volumen de entrada de cable	VR102	:MÁX.
Volumen de música	VR401	:MÁX.
Volumen de eco	VR403	:MÁX.
Volumen de micrófono 1	VR405	:MÁX.
Volumen de micrófono 2	VR406	:MÁX.
Volumen de micrófono 3	VR407	:MÁX.
Volumen maestro	VR411	:MÁX.
Micrófono de eco 3	S401	:ACTIV.
Volumen de equilibrio	VR410	:Centro
Tono bajo de música	VR402	:Centro
Tono alto de música	VR403	:Centro
Tono bajo de micrófono	VR414, VR408, VR412	:Centro
Tono alto de micrófono	VR415, VR409, VR413	:Centro
Sensibilidad de conmutación automática TAPE/AUX	S103	:Medio
Conmutación de modo TAPE/AUX	S104	:Estereofónico
Volumen de entrada TAPE/AUX	VR103	:MÁX.
Volumen de retardo	VR416	:Alrededor del centro
Volumen de repetición	VR417	:Alrededor del centro

Paso N°	Señal de entrada y ajuste	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1	• Entrada 1 kHz, 75m V eficaces de onda senoidal en los terminales de entrada VCR derecho e izquierdo. • Posición de control de tecla b1• (Normal)	——	Terminales de altavoces derecho e izquierdo	Mida el nivel de salida.	
2	• Ajuste la posición de control de tecla a b4.	VR301 (D) VR302 (I)	Terminales de altavoces derecho e izquierdo	Ajuste de modo que el valor de ajuste sea +0,5 ±0,5 dB al valor medido en el paso No. 1.	
3	• Posiciones de control de tecla b1 a b3 #1 a #4	——	Terminales de altavoces derecho e izquierdo.	Compruebe que el valor de ajuste sea: b1 a b3: +0,5 ±3 dB al valor medido en el paso N° 1. #1 al #4: −0,5 ± 3 dB al valor medido en el paso N° 1.	

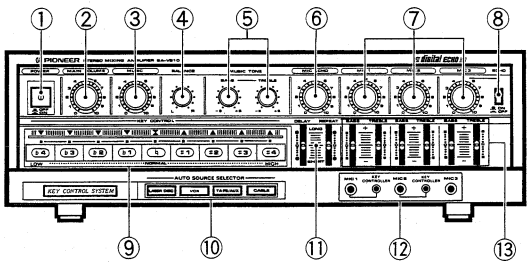


7. PANEL FACILITIES

REAR PANEL



FRONT PANEL



REAR PANEL

① AUDIO INPUT jacks

■ **LASERDISC**
Connect to the AUDIO jacks of a LD player.

■ **VCR**
Connect to the AUDIO OUT jacks of a VCR.

■ **CABLE**
For input of monophonic audio signals from cable receivers etc. When both terminals are connected select 1 or 2 using the sending device.

■ **TAPE/AUX**
Can be connected to the PLAY (OUTPUT) jacks of a cassette deck or to the OUTPUT jacks of other audio components.

② VCR SOURCE SELECTOR SENSITIVITY switch

Switch it for proper operation of the AUTO SOURCE SELECTOR function of the SA-V210.

M : Normal position

L : (When no LASERDISC signal is input.)
If "TAPE/AUX" or "CABLE" terminal is automatically selected even though VCR is being played , set to this position "L" to select VCR.

H : (When no LASERDISC signal is input.)
If "TAPE/AUX" or "CABLE" is not selected even though VCR finishes its playback, set to this position "H" to select "TAPE/AUX" or "CABLE."

③ VCR VOLUME control

Controls the volume of the VCR input terminals sound.
This control is normally centered but should be adjusted in accordance with the volume of the LASERDISC.

④ VCR MODE switch

This switch is used to select the VCR audio modes (MONO/STEREO).
Connect a VCR with monophonic audio output either to "L" or "R" AUDIO INPUT jack and set this switch to "MONO."

⑤ CABLE VOLUME control

Controls the volume of the CABLE input terminals sound.
This control is normally centered but should be adjusted in accordance with the volume of the LASERDISC.

⑥ TAPE/AUX SOURCE SELECTOR SENSITIVITY switch

Switch it for proper operation of the AUTO SOURCE SELECTOR function of the SA-V210.

M : Normal position

L : (When neither LASERDISC nor VCR signal is input.)
If "CABLE" is automatically selected even though " TAPE/AUX" signal is being played , set to this position " L" to select "TAPE/AUX."

H : (When neither LASERDISC nor VCR signal is input.)
If AUTO INPUT selector remains at "TAPE/AUX" even though TAPE/AUX finishes its playback, set to this position "H" to select "CABLE."

⑦ TAPE/AUX VOLUME control

Controls the input sound level of devices connected to the TAPE/AUX input jacks. This control is normally centered but should be adjust for LASERDISC.

⑧ TAPE/AUX MODE switch

This switch is used to select audio modes (MONO/STEREO) of components connected to the TAPE/AUX input jacks. Connect a component with monophonic audio output either to "L" or "R" AUDIO INPUT jack and set this switch to "MONO."

⑨ VISUAL INPUT jacks

■ **1 LASERDISC**
Connect to the VIDEO OUT jack of the LD player.

■ **2 VCR/CAMERA**
Connect to the VIDEO OUTPUT jack of the VCR or TV camera.

⑩ VISUAL OUTPUT jacks

■ **1 - 3**
Jacks for connection to the VIDEO INPUT jacks of TV monitors (maximum three monitors).

■ **VCR/CAMERA ONLY**
Signals input to the "VCR/CAMERA" VISUAL INPUT jack of the SA-V210 will always be output. By connecting to a TV monitor, you can monitor a VCR or TV camera.

⑪ SPEAKERS terminals

Two speaker systems (A and B) can be connected. For details,

- Always connect the plus (+) and minus (−) wires of the speakers to the speaker terminals of the same polarity. A polarity error can cause unnatural sound.

⑫ VOLTAGE SELECTOR

⑬ MIC input jacks 1,2,3

Microphones cannot be connected directly to the SA-V210. When placing the SA-V210 into a rack with MIC cords, connect the MIC cords of the rack. When using microphones with key control remote switch connected to MIC 1 and 2, connect the control cords to the KEY CONTROLLER jacks.

If a microphone is connected to the MIC jack on the front panel, front input has priority.

NOTE:

- *Position of the key controller may change by connecting/disconnecting of the remote plug. In such a case, set it again to the desired position.*
- *For the key control function, both front and rear inputs are effective.*

⑭ AUDIO OUTPUT MONITOR L + R jack

The L and R audio signals input to the audio input jacks (LASERDISC, VCR, CABLE, TAPE/AUX) always appear as L + R monaural.

⑮ AUDIO OUTPUT jacks

These jacks are used to output the L and R audio signals to the audio input jacks (LASERDISC, VCR, CABLE, TAPE/AUX) of this unit.

⑯ HOWLING CUT switch

In case of howling, set this switch to "ON."

⑰ TAPE REC jacks

Connect to the REC (INPUT) jacks of a cassette deck. Mic mixing recording will be possible, because signals processed with microphone mixing are output.
When "TAPE/AUX" or "CABLE" has been selected, no sound can be heard.

⑱ KEY CONTROLLER AUTO RETURN switch

ON — When a song is finished, the key controller will automatically return to the standard key (♮).
OFF — The key will only change by key control operation.

⑲ KEY CONTROLLER REMOTE CONTROL jack

• If you wish to upgrade your system in the future, use this jack to connect such components as a Pioneer video disc autochanger commander.

Connect to the remote control terminal of the Pioneer commander capable of controlling the key controller. (Use the controlling cord for key controller supplied with the commander.)
By using the wireless remote controller supplied with the commander, operation of the SA-V210's key controller can be remote-controlled.

⑳ GND (Ground) terminal

Always ground this unit to prevent electrical shock and to avoid generating interference or noise in other equipment.

㉑ Power cord

FRONT PANEL

① POWER switch (■ OFF, ▂ ON)

Pressing this switch turns ON the power for the SA-V210. Pressing this switch again turns OFF the power.

② MAIN VOLUME control

Controls the volume of the sound from the speakers.

③ MUSIC control

Controls the volume of equipments connected to the LASERDISC, VCR, CABLE and TAPE/AUX jacks on the rear panel. Normally, keep the MAIN VOLUME control near the 5 – 7 position and use the MUSIC control to adjust the volume of the music source.

④ BALANCE control

Adjusts the balance between the sound from the left and right.

⑤ MUSIC TONE controls

These control the tones (BASS/TREBLE) of the music source.
BASS: Adjusts the low-frequency tone.
TREBLE: Adjusts the high-frequency tone.

⑥ MIC ECHO control

Controls the echo levels for microphones 1, 2 and 3 simultaneously.

⑦ MIC volume controls (MIC 1, 2 and 3)

To adjust the respective microphones' volume level against the music source.
Normally, keep the MAIN VOLUME control near the 5 – 7 position and use the MIC controls to adjust the volumes.

⑧ MIC 3 ECHO switch (■ ON, ▂ OFF)

This switch controls only the echo for the microphone 3 input. Pressing this switch turns off the echo.

⑨ KEY CONTROL switches/indicators

Press to change the pitch of the music source.
■ ♮
Key for standard setting.
■ ♯1 – ♯4
A maximum raise of four tones above the setting of the standard key is possible in semitone-steps.
■ ♭1 – ♭4
A maximum decrease of four tones below the setting of the standard key is possible in semitone-steps.

NOTE:
No key change is possible when "CABLE" has been selected by the input selector.

⑩ AUTO SOURCE SELECTOR indicators

This unit automatically select the input source signals with priority in the order of LASERDISC, VCR,TAPE/AUX and CABLE. These indicators display the output source accordingly.

⑪ ECHO adjusting controls

Controls the microphone echo characteristics.
■ **DELAY**
Adjusts the echo delay time. Setting higher, the echo intervals become longer, resulting in stronger echo effect.
■ **REPEAT**
Adjusts the echo repeat times. Setting higher, the echo repeat times increase, resulting in stronger echo effect.

NOTE:
• *When the DELAY control is adjusted while using the microphone, the pitch may be changed.*
• *If the REPEAT control is set too high, echo may never stop. In such a case, readjust the REPEAT control.*

⑫ MIC and KEY CONTROLLER jacks

Three microphones can be connected simultaneously.
When using a microphone with key control switch, connect it to MIC 1 or MIC 2 jack. And be sure to connect the control cable to the KEY CONTROLLER jack.

⑬ MIC TONE controls

These controls adjust the tone (BASS/TREBLE) for microphones 1, 2 and 3.
BASS: Adjusts the low-frequency tone.
TREBLE: Adjusts the high-frequency tone.